

Appl. No. 10/708,699

Amdt. dated May 30, 2005

Reply to Office action of April 04, 2005

**Amendments to the Specification:**

After the title of the invention, please add the following new paragraph under the section heading of "Foreign Priority":

- 5 The current application claims foreign priority to application 092106403 filed 03/21/2003 in Taiwan.

Please replace paragraph [0012] with the following amended paragraph:

- 10 Fig.2 is a circuit diagram of the voltage test circuit and the current test circuit.

Please delete paragraph [0015].

Please replace paragraph [0016] with the following amended paragraph:

15

- Please refer to Fig.1 showing a block diagram of a power source test instrument 10 according to the present invention. The power source test instrument 10 includes a voltage test circuit 12, a current test circuit 14, a power management circuit 16, a fuse 18, a plurality of relays 20, a radiator 22, and an adaptor 24. The voltage test circuit 12 and the current test circuit 14 are independent to each other, which means that the voltage test circuit 12 and the current test circuit 14 can be used independently and even simultaneously. The voltage test circuit 12 and the current test circuit 14 each include an operational amplifier. In this embodiment, the operational amplifier of the voltage test circuit 12 is an OPTDA2030 and the operational amplifier of the current test circuit 14 is an OPMC1741C. The power management circuit 16 is for providing voltage to the voltage test circuit 12 and the current test circuit 14, and for protecting the voltage test circuit 12 and the current test circuit 14 by fusing the power management circuit 16 with a fuse [[10]] 18. The plurality of relays 20 are connected to the output terminals of the
- 20
- 25

Appl. No. 10/708,699  
Amdt. dated May 30, 2005  
Reply to Office action of April 04, 2005

voltage test circuit 12 and the current test circuit 14. The switch of the relays 20 determined on the user and is for switching on and off the output of the voltage test circuit 12 and the current test circuit 14. The adaptor 24 is connected to the current test circuit 14 because an open circuit is required when testing currents.

5

Please replace paragraph [0020] with the following amended paragraph:

Please refer back to ~~Fig.5~~ Fig.2 showing a circuit diagram of the current test circuit 14. The current test circuit 14 is composed of the OPMCI741C operational amplifier 46, supplied a voltage of  $\pm 9V$  by the power management 16 and connected with proper capacitors to keep the voltage stable. The operational amplifier 46 uses an R1 resistor, an R2 resistor, an R3 resistor, and an R4 resistor to form a differential amplifier. The differential amplifier includes a first input terminal V2, a second input terminal V1 and an output terminal V. If  $R2/R1=R4/R3$ , then  $V=R2/R1(V2-V1)$ . In order to match the resistors, the R2 resistor and the R4 resistor can be connected serially with variable resistors 48, 50 respectively to ensure the proportion of the resistance. In this embodiment, the R1 and the R3 resistors are  $1k\Omega$  and the R3 and the R4 resistors are  $10k\Omega$ . The ratio of  $R2/R1$  is 10, thus a second resistor 54 in  $0.1\Omega$  (2W) is connected between the V1 and the V2 so that the output voltage is equivalent to the current flow over the second resistor 54. Therefore, the current of the portable apparatus can be known by measuring the voltage. Because an open circuit is required when testing the current, the adaptor 24 is connected to the current test circuit 14 and switched by the fourth set of relays 52, in order to measure the output voltage and the output current of various kinds of chargers and to test the IV curve of the charger.

25